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a few days before the bill passed took part in putting the finishing touches on the provisions of the Lacey Act incorporated in that Code. Later he took an active part in securing an increase in the appropriation for the maintenance of the buffalo herd in the Yellowstone Park.

In recognition of his interest in the protection of migratory birds he was recently appointed a member of the Advisory Board and was to have been present with other members of the committee at the hearing in Omaha on August 6, but was prevented by absence in California. Always interested in any measure for the conservation of wild life and ready to assist to the utmost of his ability, Major Lacey was a staunch friend of the Department, an earnest advocate of wild life conservation, and a singularly effective worker in this field. It is unfortunate that he could not have lived a few days longer to have learned the outcome of the measures for the protection of migratory birds and the plumage clause in the Tariff Bill, in which he was much interested.—T. S. PALMER, *Assistant Chief, Biological Survey.*

PUBLICATIONS REVIEWED

A REVISION OF THE GENUS CHAEMEPELIA.
By W. E. CLYDE TODD. (Annals of the Carnegie Museum, VIII, May 8, 1913, pp. 507-603).

This is a careful and thorough revision of a difficult group of birds, and one leaving little to be desired in manner of treatment. The author had at his disposal "no less than nineteen hundred and twenty specimens of this genus, representing all of the known forms, and including a number of types", a quantity of material sufficing for a satisfactory solution of most of the problems involved.

Five species are recognized in the genus, *passerina*, *minuta*, *buckleyi*, *talpacoti*, and *rufipennis*. A sixth species, *Columba cruziana* Prevost and Knip, generally placed in the genus *Chaemepelia*, is here made the type of a new genus, *Eupelia*. *Chaemepelia* and *Eupelia*, with five other genera, are placed in the subfamily Claraviinae, corresponding to Salvadori's Peristerinae. *C. passerina* is divided into sixteen subspecies, *minuta* into two, *rufipennis* into two, while *buckleyi* and *talpacoti* each remains undivided. Three new South American subspecies of *passerina* are designated, *parvula* from central Colombia, *nana* from western Colombia, and *quitensis* from Ecuador; and *C. minuta elaeodes* is described from Costa Rica.

In the treatment accorded the North American forms of *C. passerina* certain changes are noted from the arrangement in the A. O. U. *Check-List*. The bird of the southeastern United States once more receives the name of *passerina*; *C. p. bermudiana*, of Bermuda, is relegated to the synonymy of *C. p. bahamen-*

sis, which is itself considered as but poorly differentiated from the Cuban bird.

The critical, detailed discussions of the various forms contain much that is interesting and suggestive, and will undoubtedly prove most helpful to future workers in the group. The exceedingly thorough bibliographical research carried out by the author has borne its fruits in the satisfactory solution of various nomenclatural puzzles of long standing.

The paper closes with a table of the average measurements of the various forms, and a list of the skins examined, with the source of each specimen.—H. S. SWARTH.

A STUDY OF THE NESTING BEHAVIOR OF THE YELLOW WARBLER (*Dendroica aestiva aestiva*). By HARRY C. BIGGLESTONE. (Wilson Bulletin, xxv, June, 1913, pp. 49-67, 5 tables).

In the *Wilson Bulletin* for June, 1913, is to be found a most notable article on the nesting behavior of the Eastern Yellow Warbler. The paper records observations made by Harry C. Bigglestone from a blind near the Macbride Lakeside Laboratory on Lake Okoboji, Iowa, during the summer of 1912. The nest was discovered before the set of eggs was complete and after hatching was watched continuously during hours of daylight until the young had flown. During the eight days involved the author received relief from other students in the laboratory at meal times and other periods of the day, thus lightening the tediousness of the task.

The patience displayed was certainly rewarded by the results obtained, for the reviewer can think of no paper which has furnished so much valuable information as to the details of the nesting behavior of any single bird. Even such minute details as the way in which the hatching bird frees itself from the shell and the time taken for this operation are recorded.

By marking the young warblers with colored strings tied about the leg, the author was able to keep track of the amount of food each was fed. Tables show the number of visits made by the parents, the distribution of food by days, and the distribution of food to the different nestlings. A total of 2373 visits with food were made, even though feeding was left entirely to the female during the last few days. The food was found to be made up entirely of insects, "green worms" being the largest item.

Under the heading of sanitation are recorded many interesting facts regarding the removal of excreta. For the first few days the parent birds usually ate the excreta, but later it was carried away. The egg-shells were all eaten. A table gives the total number of excreta sacs, together with their disposal.

Miscellaneous notes bearing on the capture of one of the young by a garter snake, the stereotyped method of approach to the nest used by the parents, notes as to the behavior of the nestlings, and a summary, conclude the paper.

The nest and nestlings being under continual observation for 144 hours and 53 minutes established an enviable record. If there are other ornithologists seeking for something difficult to do and something much worth while, let them go and do likewise.

Students of animal behavior will be interested in the suggested modifiability of behavior brought about by artificial conditions. Laboratory methods for the study of animal behavior are greatly emphasized at the present time. Such a paper as this, however, makes us ask the question whether first-hand information gained as this was is not vastly superior and more dependable than similar information which could have been gained by laboratory experiments. The artificial conditions which surround laboratory experiments on higher vertebrates, even though proper controls be used, usually make the results less dependable. The field method has the added advantage also of a comparatively small equipment.

The limited amount of available information regarding the life-histories of our song birds becomes apparent only to those who attempt to search into the subject. To those who appreciate the dearth of material such papers as the one before us give encouragement and bring hopes that their advent but presages increased activity in this field.—H. C. BRYANT.

LIFE ZONES AND CROP ZONES OF NEW MEXICO. By VERNON BAILEY. (North American Fauna No. 35, Sept. 5, 1913, pp. 1-100, pls. I-xvi, 6 figs. in text).

A great deal of valuable information is concentrated in the small compass of this publication, which is a brief but comprehensive survey of the subject. The life zones found in New Mexico are Lower Sonoran, Upper Sonoran, Transition, Canadian, Hudsonian, and Arctic-Alpine. Each is treated separately, first with a general account of the nature of the country covered, this followed by nominal lists of the mammals, birds, reptiles, and plants peculiar to the division, and similar lists of the fruits, vegetables and other crops most apt to thrive. Following this classification of the life zones is a series of descriptions of the more important mountain ranges of the state.

The ornithological matter contained in the publication is limited to nominal lists of the breeding birds of each zone, and similar lists of the species occurring in the various mountain ranges. Transients and winter visitants

are not included, as having no bearing upon the subject of the report. We understand, however, that the animals of the state are to receive more detailed attention in future papers, which they certainly deserve, as pertaining to a portion of North America which hitherto has not received its fair share of attention from naturalists.

More explicit statements of the manner of occurrence of certain species may be expected to explain what at present appear to be some rather puzzling discrepancies in the status of the same birds in New Mexico and at points farther west. Thus the Scott Oriole (*Icterus parisorum*) is here listed as Lower Sonoran, while in the experience of the present reviewer it is in Arizona and California most emphatically Upper Sonoran. Similarly the Cooper Tanager (*Piranga rubra cooperi*), given as Upper Sonoran, is in Arizona a characteristic bird of the Lower Sonoran wooded river beds, while the White-rumped Shrike (*Lanius l. excubitorides*), also here considered as Upper Sonoran, is in Arizona and California at least as abundant in the Lower Sonoran valleys. There are other similar cases.

The doubtful inclusion of the Calliope Hummingbird (*Stellula calliope*) among the breeding birds of the Canadian Zone of New Mexico is probably another instance of the extension of a hummingbird's breeding range from the appearance of migrating individuals, usually adult males, at distant points before the breeding season is fairly over.

On the whole, however, these lists of the birds, as well as those of the other components of the fauna and flora of the state, the carefully worked out results of extensive and painstaking field work by an admitted authority on the subject, may be taken as practically final. The above comments by the reviewer on certain species are directed not as criticisms of statements made, but rather to call attention to the various conditions under which species have been found in different portions of their habitats.

The numerous plates and figures are well selected to illustrate the nature of the country, while the accompanying colored map of the life zones of the state, of unusually large size, is apparently most carefully worked out as regards the finer details.—H. S. SWARTH.

BIRD STUDY NOTE BOOK. By CLARA COZAD KEEZEL. (Published by the author, Garnett, Kansas).

This title appears on the cover of a little note book carefully prepared to meet the needs of the growing number of students interested in bird life. It is arranged in columns appropriately headed for entering the name of the bird, date of arrival, residence (winter,